Math 134 Spring 2018
Krystin Manguba-Glover
Classwork 17 Name: _____

Work on as many problems as you can together with your group members. Towards the end of lecture your group will be asked to present problems correctly to receive classwork points.

1. Starting with the graph of $y = x^2$, use transformations to graph the following function:
   (a) $f(x) = (x-1)^2 + 3$
   (b) $f(x) = -(x+1)^2 + 1$
   (c) $f(x) = (x+3)^2 - 2$
   (d) $f(x) = -(x-4)^2 - 1$
   (e) $f(x) = -(x+3)^2 + 1$
2. Starting with the graph of $y = |x|$, use transformations to graph the following function:
   (a) $g(x) = 2|x+3| - 2$
   (b) $g(x) = 3|x-2| - 2$
   (c) $g(x) = -2|x+1| + 5$
   (d) $g(x) = 3|x-3| + 1$
   (e) $g(x) = -2|x+1| + 2$
3. Starting with the graph of $y = \sqrt{x}$, use transformations to graph the following function:
   (a) $h(x) = -\sqrt{x-4}$
   (b) $h(x) = 2\sqrt{x+5}$
   (c) $h(x) = 3\sqrt{x-3} + 1$
   (d) $h(x) = -2\sqrt{x+1} + 1$
   (e) $h(x) = 4\sqrt{x} - 5$
4. Starting with the graph of $y = \sqrt[3]{x}$, use transformations to graph the following function:
   (a) $j(x) = \frac{1}{2}\sqrt[3]{x-1}$
   (b) $j(x) = \frac{1}{2}\sqrt[3]{x+1}$
   (c) $j(x) = \frac{1}{2}\sqrt[3]{x} + 2$
   (d) $j(x) = \frac{1}{2}\sqrt[3]{x} - 3$
   (e) $j(x) = \frac{1}{2}\sqrt[3]{x-2} + 1$

5. Starting with the graph of $y = x^3$, use transformations to graph the following function:

   (a) $k(x) = -2(x-1)^3 + 1$

   (b) $k(x) = \frac{1}{2}(x-2)^3 - 2$

   (c) $k(x) = -\frac{1}{2}x^3 + 5$

   (d) $k(x) = 2(x+2)^3 - 4$

   (e) $k(x) = -\frac{1}{2}(x+3)^3 - 2$

6. Starting with the graph of $y = |x|$, use transformations to graph the following function:

   (a) $l(x) = |2x-2|$

   (b) $l(x) = |3x+3|$

   (c) $l(x) = \left|\frac{1}{2}x\right| + 5$

   (d) $l(x) = -|2x+2|$

   (e) $l(x) = -2|3x+3|$

7. Begin by completing the square. Then use transformations to graph the function:

   (a) $y = x^2 - 4x + 7$

   (b) $y = x^2 + 6x + 5$

   (c) $y = x^2 - 10x + 20$

   (d) $y = x^2 + 12x + 30$

   (e) $y = -x^2 + 4x + 3$